Abstract

A differential detection approach allows communication without knowing the channel parameters, where the transmitter can include a plurality of transmitting antennas in excess of two. In the transmitter, each block of bits is mapped to a vector that is processed to develop a symbols vector, by employing mutually orthogonal vectors and the symbols vector of the previous block. The symbols vector is applied to a space-time mapping block, and thence to transmitting antennas. At the receiver, the received signals of a block are formed into vector, which is combined with a corresponding vector from the previous block in accordance with the mutually orthogonal vectors. The combined vector is summed with combined vectors of the other receive antennas, and the summed result is applied to a minimum distance decoder module. The decoder module selects a "most likely" vector, and that vector is applied to a mapping that recovers the transmitted bits.